

WHAT IS CLAIMED IS:

1. An apparatus for insert molding, comprising:
  - an upper mold half;
  - a lower mold half for mating with said upper mold half to provide a molded part cavity therein;
  - at least one of said lower mold half and said upper mold half including:
    - an elevator opening;
    - an inwardly directed lip at a cavity side of said elevator opening; and
    - an elevator mechanism including:
      - a lifter for supporting an insert to be secured to a molded article during a molding operation, and
      - a lifting arrangement for raising and lowering said lifter through said elevator opening such that a peripheral edge of the insert supported on said lifter is clamped between said lifter and said lip when said lifting arrangement moves said lifter adjacent said inwardly directed lip.
2. The apparatus according to claim 1, wherein said lifting arrangement includes:
  - a base positioned outside a respective said mold half on a side opposite said molded part cavity; and
  - a cylinder mounted to said base and including a movable piston rod connected with said lifter for raising and lowering said lifter.
3. The apparatus according to claim 2, wherein said base includes a recess for mounting said cylinder.
4. The apparatus according to claim 1, further comprising a retainer removably connected to said respective mold half within said elevator opening, said retainer including a dam flush with and removable from an inner wall defining said elevator opening, and said retainer further including said inwardly extending lip connected to an end of said dam.

5. The apparatus according to claim 4, wherein said retainer further includes an outwardly extending connector connected with an opposite end of said dam and removably secured to a surface of the respective mold half.

6. The apparatus according to claim 1, wherein said lifting arrangement includes:

a first slide plate having a first inclined cam surface, said lifter being connected to said first slide plate;

a second slide plate having a second inclined cam surface in contact with said first inclined cam surface; and

a moving arrangement for sliding said second slide plate relative to said first slide plate in order to raise and lower said first slide plate and said lifter.

7. The apparatus according to claim 1, which is adapted for molding shoe insoles and wherein:

said lower mold half includes:

two lower mold cavities corresponding to left and right insoles to be molded;

one said elevator opening in a lower portion of each said lower mold cavity; and

one said inwardly directed lip at an upper portion of each said elevator opening;

said elevator mechanism includes two said lifters for supporting an insert in correspondence with each said lower mold cavity; and

said lifting arrangement raises and lowers said two lifters such that a peripheral edge of each insert supported on each said respective lifter is clamped between said lifter and the respective lip when said lifting arrangement raises said lifters.

8. A method for insert molding, comprising the steps of:

providing an upper mold half and a lower mold half for mating with said upper mold half to provide a molded part cavity therein, at least one of said lower mold half and said upper mold half including an elevator opening, and an inwardly directed lip at a cavity side of said elevator opening;

supporting an insert to be secured to a molded article on a lifter positioned in said elevator opening during a molding operation;

moving said lifter such that a peripheral edge of the insert supported on said lifter is clamped between said lifter and said lip when said lifting arrangement moves said lifter adjacent said inwardly directed lip;

supplying a molding material to said cavity; and  
closing said mold halves until said article is formed.

9. The method according to claim 8, further comprising the steps of:

opening said mold halves after said article has been formed;

moving said lifter such that said peripheral edge of the insert supported on said lifter is no longer clamped between said lifter and said lip; and

removing said formed article from said mold.

10. The method according to claim 8, further including the step of applying a barrier layer on said insert prior to supporting said insert on said lifter to prevent said molding material from penetrating through said insert.

11. The method according to claim 8, further comprising the step of maintaining the insert in a flat configuration while moving the lifter to clamp the insert and prior to closing said mold halves.

12. The method according to claim 11, wherein said step of maintaining includes the step of placing a support, having approximately the same shape as the insert, on the insert prior to raising the lifter in order to maintain the insert in a flat configuration during the clamping operation, and then removing the support prior to closing the mold halves together.

13. A molded article containing an insert and being produced by the method of claim 8.

14. An insole for use with footwear, comprising:

a first layer having a lower shallow recess and a first property selected from the group consisting of cushioning, hardness, density, resilience and color; and

an insert secured in said recess and being made of a material of a second said property which is different from said first said property, said insert having an upper surface secured to said first layer in said recess, and a peripheral portion of said upper surface being free and unsecured to said first layer in said recess.

15. The insole according to claim 14, wherein said first layer includes:

a forefoot portion extending at least to metatarsals of a foot;

a heel portion;

a mid portion connecting together said forefoot portion and said heel portion;

an upper surface extending along said forefoot, mid and heel portions and on which a person stands; and

a lower surface extending along said forefoot, mid and heel portions, said lower surface including said lower shallow recess.

16. The insole according to claim 14, wherein said insert has a barrier layer on an upper surface thereof to prevent a molding material from penetrating into said insert during a molding operation.